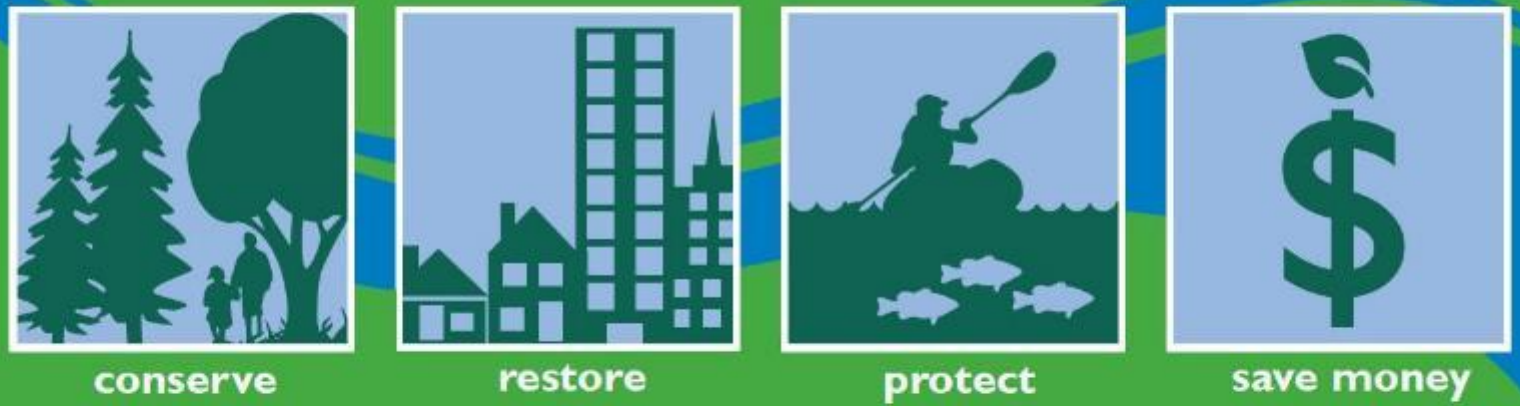
Bylaw Review of Local Land Use Standards Relative to LID



Grafton Planning Board Meeting
May 16, 2016

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Mass Audubon
Protecting the Nature of Massachusetts

CMRPC
Central Massachusetts Regional Planning Commission

SHAPING the Future of YOUR COMMUNITY

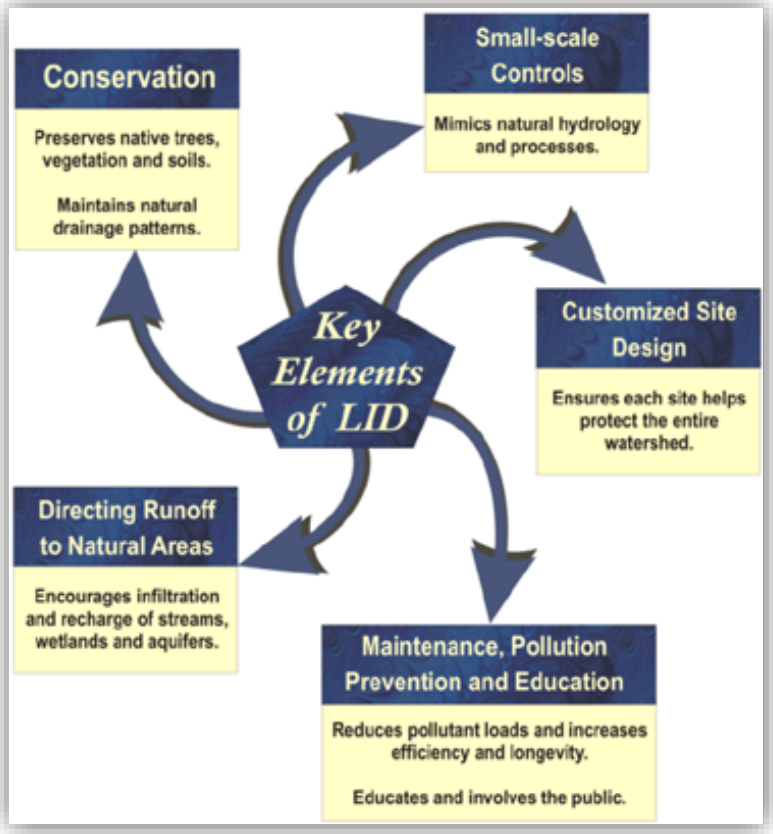
Agenda

- Background of issue and goals
- Overview of regulations reviewed and general recommendations
- Next steps
- Questions

What is Low Impact Development?

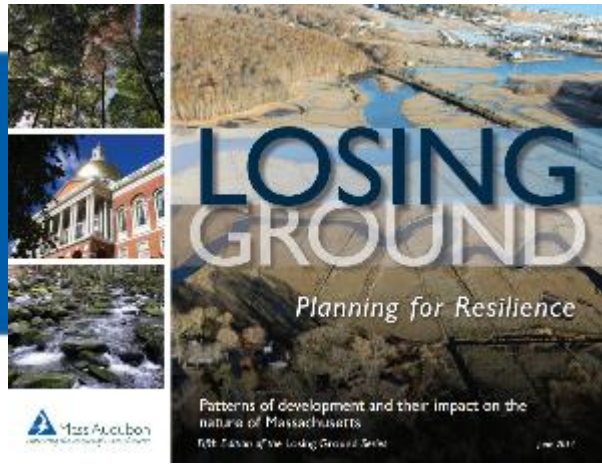
“LID is an approach to land development (or re-development) that **works with nature to manage stormwater** as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that **treat stormwater as a resource** rather than a waste product.”

- EPA

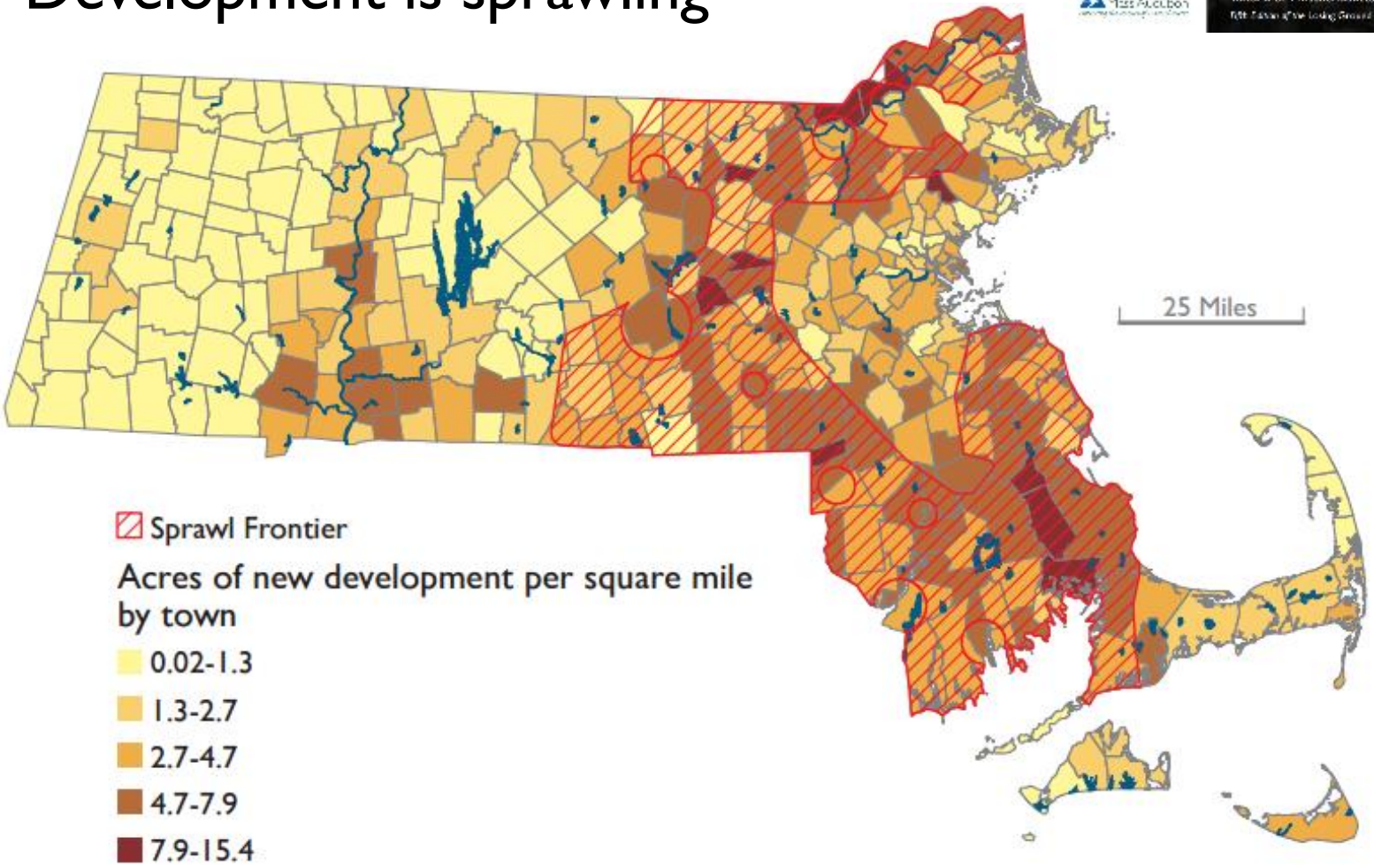


Source: Whole Buildings Design Guide, wbdg.com

What's the Problem?

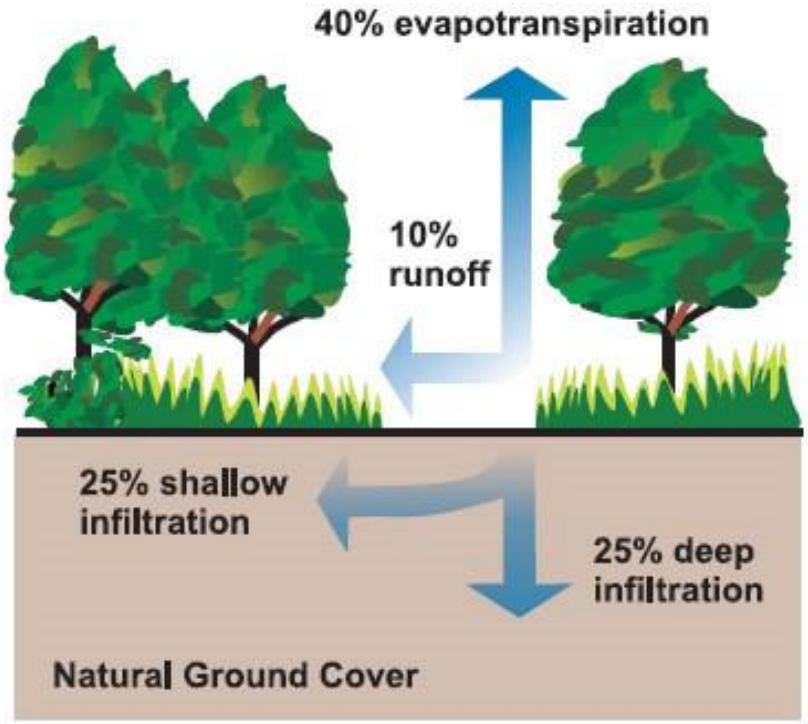


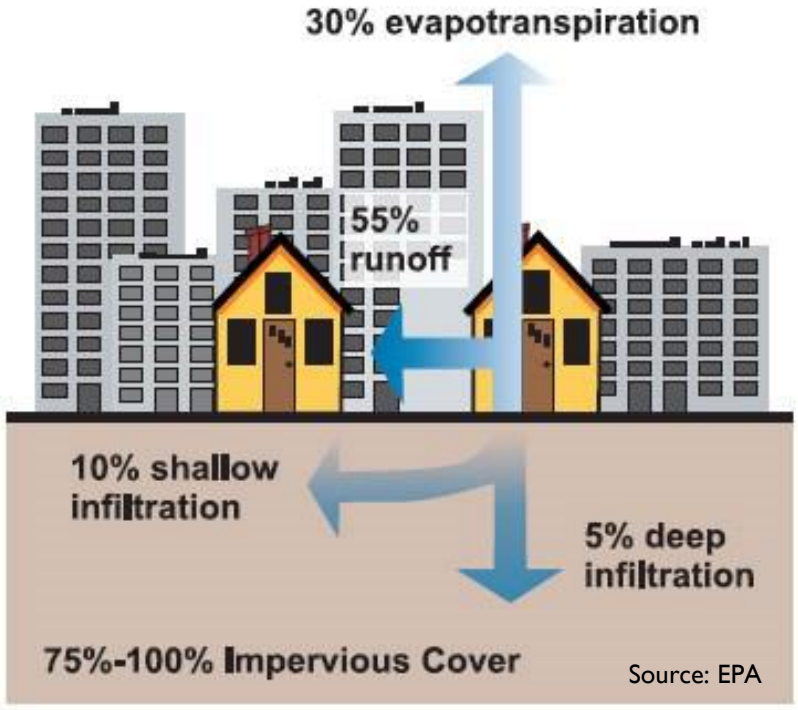
Development is sprawling



What's The Problem?

Impervious surface → **Runoff**





Source: EPA

Impacts of Stormwater Runoff

We Need to Change Course

Traditional development

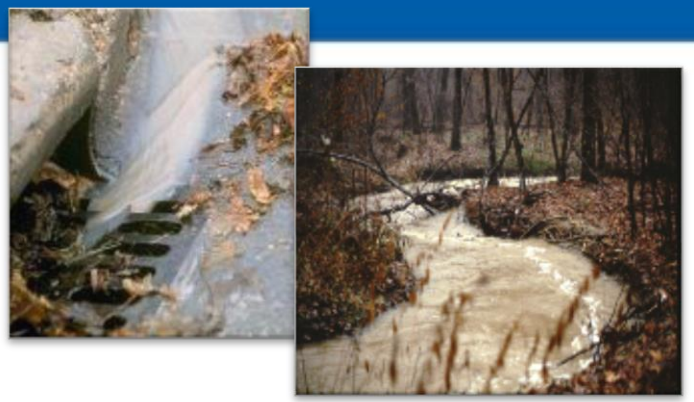
Impervious surfaces

Stormwater runoff

Water quality impairment

Infrastructure impacts

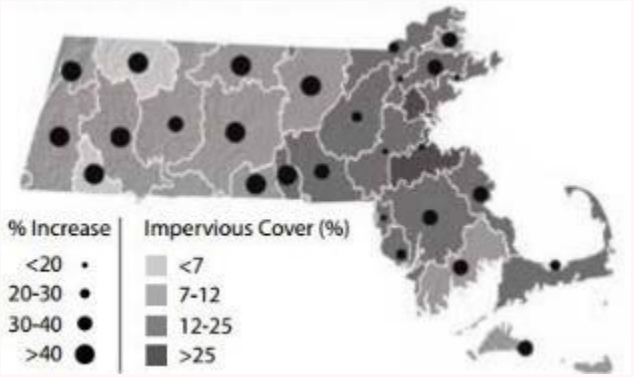
Financial and regulatory burden

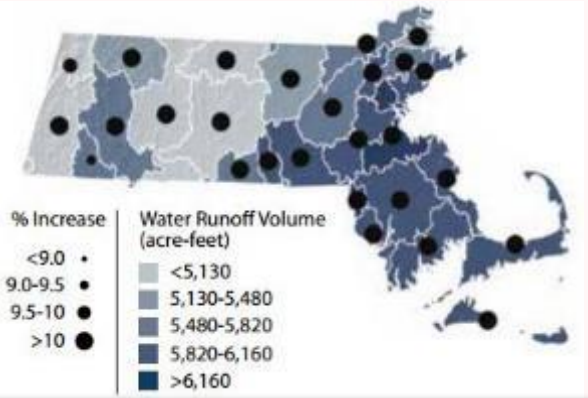


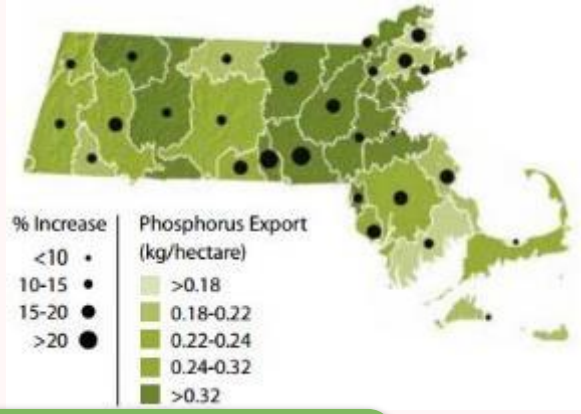
The Value of Green: Impervious, Runoff, Nutrients

Source: Harvard Forest *Changes to the Land* 2014

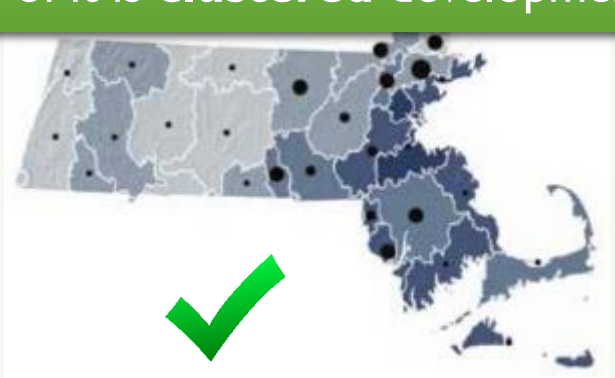
If we continue to follow opportunistic growth, in 2060:

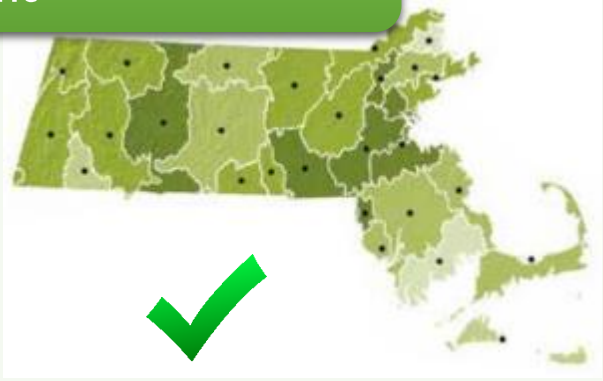






These allow for nearly the **same amount of development**, but 2/3 of it is **clustered** development





A Different Direction: Greening Your Community

Sustainable development

Increased infiltration

Reduced runoff & more groundwater

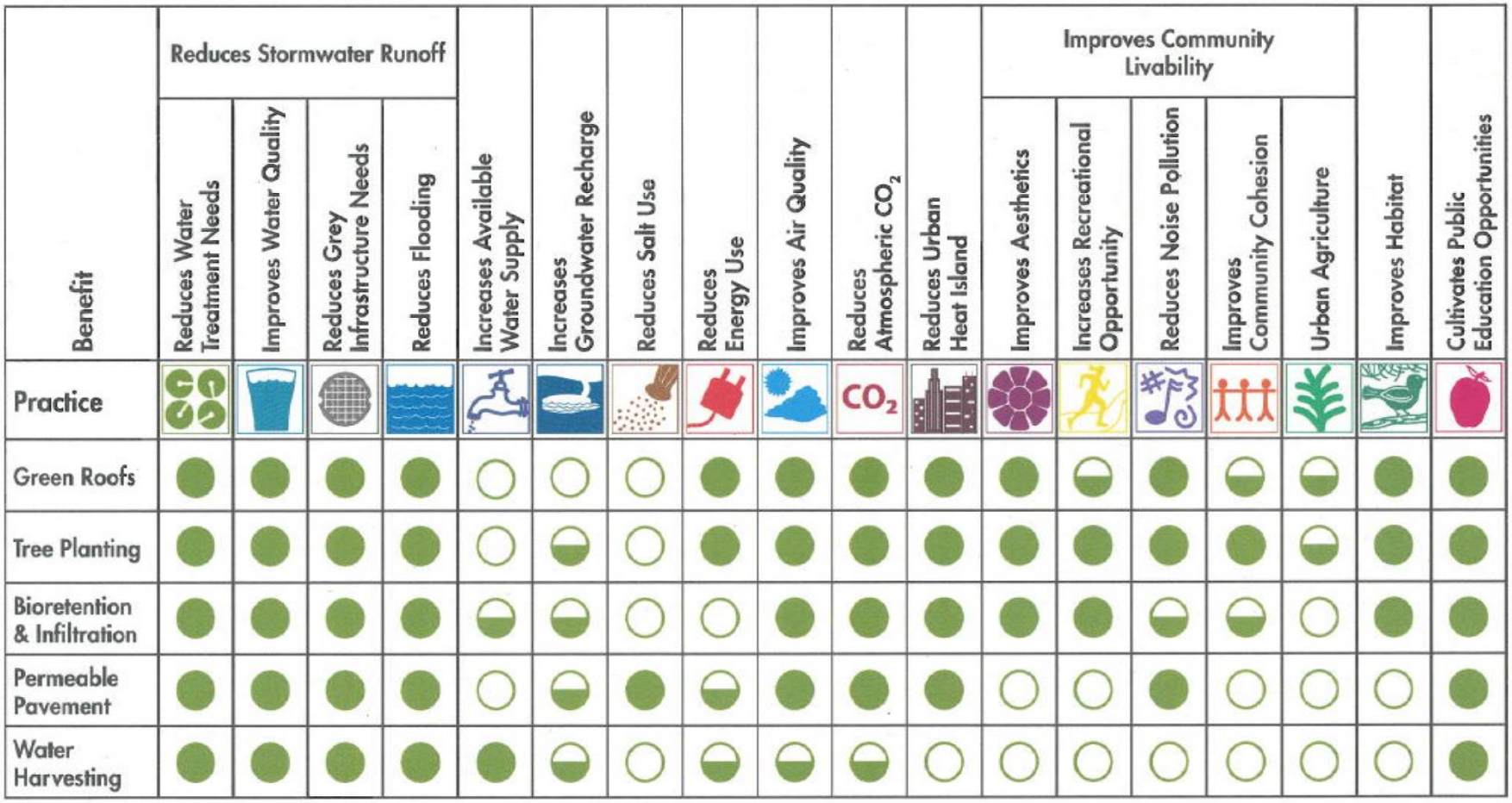
Improved water quality

Intact infrastructure

Regulations met

Money saved

Benefits of LID Practices



Source: Center for Neighborhood Technology's The Value of Green Infrastructure

Start Here.

Conserve the natural green infrastructure already providing free ecosystem services

Incorporate LID and green infrastructure design into development

Restore the resiliency of urban landscapes through LID in redevelopment

Conserve

Conserve the natural green infrastructure already providing free ecosystem services

Integrate LID and green infrastructure designs into current development projects

Restore the resiliency of urban landscapes through LID in redevelopment

Integrate

Conserve the natural green infrastructure already providing free ecosystem services

Integrate LID and green infrastructure designs into current development projects

Restore the resiliency of urban landscapes through LID in redevelopment

Restore

Conserve the natural green infrastructure already providing free ecosystem services
Integrate LID and green infrastructure designs into current development projects
Restore the resiliency of urban landscapes through LID in redevelopment

Free Ecosystem Services:

Free services provided by the natural landscape

Every $1 invested in land conservation offers a ***$4 Return on Investment*** in terms of these ecosystem service values

- **Flooding**: Floodplains provide flood protection and reduce infrastructure damage
- **Public Health**: Managing stormwater and reducing retention ponds reduces creation of mosquito habitat
- **Air Quality & Public Health**: Trees reduce the urban heat island effect, reducing smog creation and resulting asthma occurrences as well as reducing nitrogen dioxide and particulate matter
- **Water Quality**: Streamside vegetation filters pollutants and reduces erosion
- **Water Quantity**: Forests and wetlands store water, improve water quality, and recharge groundwater
- **Recreation**: Clean, flowing waters support recreation, including boating, fishing, and swimming while open space provides areas for hiking and biking
- **Quality of Life**: Open space and street trees create a more enjoyable walking environment, benefiting community connection, health, and economic benefit in downtowns and commercial areas
- **Property Value**: Healthy, mature trees add an average of 10-30% to a property's value

Land Protection = Water Protection

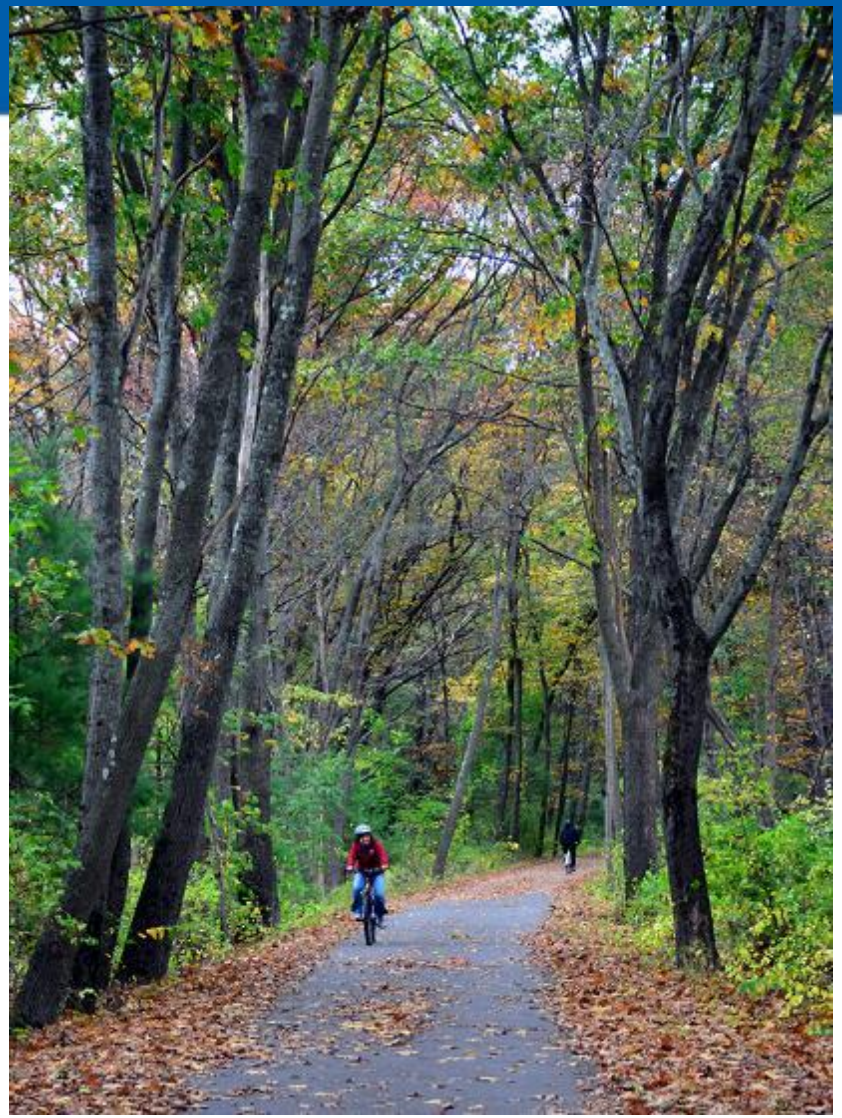
- Quabbin & Wachusett Reservoirs serve 2.5 million
- Over 20 years, Massachusetts Water Resources Authority spent $130M to protect 22,000 acres of watershed lands
- Avoided ratepayer cost of $250M on a filtration plant and $4M/yr in operations

The Power of a Bylaw: Westford

- Adopted a Conservation Subdivision bylaw in 1978
- Requires developers to submit both conservation and conventional & Planning Board chooses preferred
- 48 developments protected over1,700 of land

The Power of a Bylaw: Westford

- Preserved local habitat
- Protected water resources
- Created 13 miles of hiking trails & public recreation
- Town didn't have to purchase the land themselves, saving millions of dollars



Rail Trail in Westford

OSRD/Flexible Development

Mixture of fair, good, best practices

Best:

- ✓No minimum parcel size
- ✓Linked to Open Space & Recreation Plan
- ✓Density bonus offered

OSRD/Flexible Development

- Substantive changes
  - Dimensional requirements with specific minimums
  - Increasing minimum OS
  - Upgrading to 4-step OSRD layout
- Procedural provisions
  - Special permit → by right
  - Provision ensuring stewardship of OS
  - Defining allowed use of OS

Zoning

- Dimensional standards can be reduced to allow flexibility (lot size, setbacks, frontage)
- Limiting clearing and grading
- Explicitly allow easy siting of LID features, including in parking areas
- Reduce parking requirements, have maximums

✓Common drives allowed

Subdivision Rules & Regs

- Specifically limit clearing, grading

✓General bylaw article 13, Section 4A requires topsoil maintained

- Allow easy siting of LID features such as bioswales and expand design standards to include LID
- Allow temporary ponded runoff (prohibited)
- Allow permeable paving/sidewalks where appropriate

Subdivision Rules & Regs

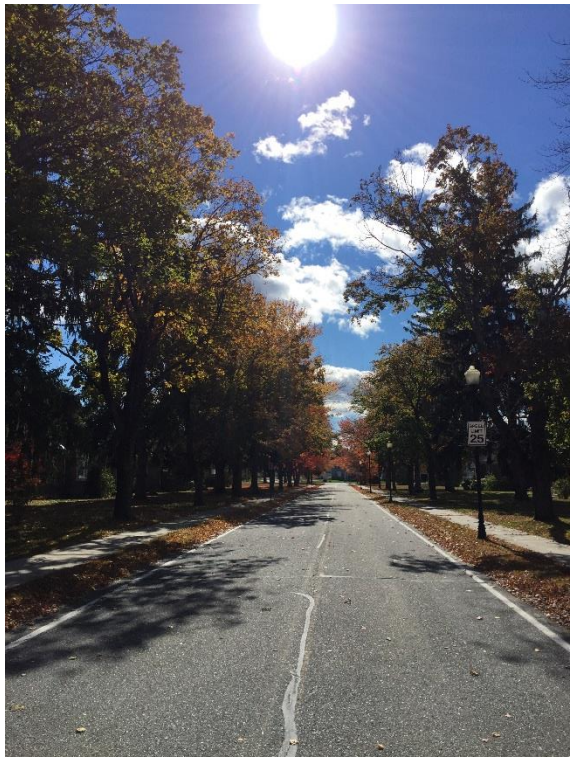
- Reduce road width, dead end/cul-de sac turnaround space

✓Road widths in 4 categories 22'-38'

- Expand preferred curvilinear layout of streets to work with natural landscape

✓Sidewalks only required on one side for minor streets

- Allow curb cuts to manage stormwater with swales (currently prohibited)



Site Plan Review

Specifically address areas of review including:

- Limiting clearing, grading
- Allow alternative stormwater design with LID
- Allow siting of LID features, including roadside swales and in parking lots
- Allow permeable paving where appropriate

Stormwater Bylaw

- ✓LID is encouraged in stormwater design
- ✓Stormwater O&M plan is required, LID encouraged
- ✓Construction erosion & sedimentaion plan includes BMPs
- Specifically allow LID in variety areas, including ROW, common areas, etc.
- Allow permeable pavement where appropriate
- Address/discourage curbing, encourage roadside swales

Next Steps

- Decide which changes are right for you
  - Politically feasible
  - Administrative changes that are supported (subdivision)
  - Long term strategy for changes requiring Town Meeting
- Take steps to meet MS4 regulations
- Increase community outreach & public awareness

Stay in Touch

- CMRPC offers Community Planning and Development Services including Direct Local Technical Assistance (DLTA)
- Shaping program is available for questions and assistance

Visit us at:

- CMRPC.org
- massaudubon.org/shapingthefuture

Thank you! Questions?

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